

REMARKS

The Examiner objects to the specification under 37 CFR 1.71 because the originally filed specification, according to the Examiner, fails to disclose "a remotely located heat source disposed...at a location that is remote from the heat dissipating system...; and a loop heat pipe thermally coupled between the heat source and the heat dissipating system". Applicant respectfully submits that there is sufficient disclosure for the limitation "a remotely-located heat source disposed.. at a location that is remote from the heat dissipating system" to be found in claims 3 and 5 as originally filed, at page 4, line 6 et seq in the specification wherein it is stated "a heat source 14 is disposed 31 on a spacecraft 20 at a location that is remote from a thermal radiator (12, 13)" or as mentioned several other places in the specification using alternative terminology.

Further, the Examiner states that "...; and a loop heat pipe thermally coupled between the heat source and the heat dissipating system" is not disclosed. Applicant respectfully submits that sufficient disclosure of a "loop heat pipe thermally coupled between the heat source and the heat dissipating system" is found at page 4, line 6 wherein it is stated "a heat transfer system 10 comprising a loop heat pipe 10 is thermally coupled 32 between the heat source 14 and the thermal radiator (12, 13). Heat generated by the heat source 14 is coupled 33 to the thermal radiator (12, 13) by way of the loop heat pipe 10."

The Examiner has rejected claims 1-6 under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The Examiner goes on to say, regarding claims 1, 3 and 5, the originally filed specification fails to disclose "a remotely-located heat source disposed...at a location that is remote from the heat dissipating system...; and a loop heat pipe thermally coupled between the ... heat source and the heat dissipating system".

Applicant respectfully submits that ample support for "a remotely-located heat source disposed...at a location that is remote from the heat dissipating system...; and a loop heat pipe thermally coupled between the ... heat source and the heat dissipating system" has been recited with respect to the objections to the specification under 37 CFR 1.71 by directing Examiner's attention to the support as found in both the specification and the claims as originally filed which recitation above is hereby respectfully incorporated by reference.

The Examiner has rejected claims 1-6 under 35 U.S.C. § 102(b) as being anticipated by Esposto and directs applicant's attention to at least figure 1 and column 4, lines 20-22.

Applicant respectfully submits that in Esposto U.S. Pat. No. 5,743,325 there is disclosed a closed-loop heat pipe transport design for a deployment application having a flexible section which connects to a payload structure and a deployable structure. The flexible section folds over itself while the deployable structure is stowed. Upon rotation of the deployable structure around a predetermined axis, the flexible section unfolds, with a portion of the flexible section passing through the predetermined axis. When the deployable structure has completed its rotation and is fully deployed, the components of the flexible section will lie in substantially the same plane.

Applicant respectfully submits that in Figure 1 of Esposto, there is no designation of a heat dissipating system having a remotely-located heat source which is not located on a heat pipe panel wherein a loop heat pipe thermally coupled between the remotely-located heat source and the heat dissipating system couples the heat generated by the heat source to the heat dissipating system as required in the claims of the instant invention. Likewise, these features of the claims of the instant invention are nowhere to be found in column 4, lines 14-14 wherein it is stated, "Several possible positions of the serpentine sections 20 are shown in FIG. 1. The serpentine section 20 is fastened on one end to the fixed radiator panel 14 and on the other end to the deployable radiator 10." Applicant respectfully concludes that this recitation clearly states that the serpentine sections of the heat pipe are fastened on one end to a fixed radiator and on the other end to a deployable radiator and nowhere is it expressly stated, implied or suggested that a loop heat pipe may be thermally coupled between a remotely-located heat source and a heat dissipating system for coupling heat generated by the heat source to the heat dissipating system.

The Examiner goes on to respond to previously presented arguments of Applicant by stating that Applicant's newly added limitation/language "a remotely-located heat source disposed at a location that is remote from the heat dissipating system...; and a loop heat pipe thermally coupled between the ... heat source and the heat dissipating system" is not supported within the originally filed specification. Further, the Examiner states that the system "10a" as stated in Applicant's originally filed specification on page 3, line 6 comprises a loop heat pipe. Therefore, the Examiner concludes, the originally filed specification states that the loop heat pipe is the same as the heat dissipation system (i.e., they are one and the same). Therefore, the Examiner goes on to conclude, that the phrase "a loop heat pipe thermally coupled between the ...heat source and the heat dissipating system" as in claims 1, 3 and 5 cannot be physically possible since the above quoted limitation requires the loop heat pipe to be coupled between the heat source and itself. The

Examiner concludes that this limitation was not disclosed within applicant's originally filed application and further states, however, the loop heat pipe is coupled between the heat source and the radiator panel (12, 13).

Applicant respectfully submits that everywhere in the specification as recited above and in the claims as originally filed and amended, the loop heat pipe is "thermally coupled between the remotely-located heat source and the heat dissipating system for coupling heat generated by the heat source to the heat dissipating system." This clearly obviates the Examiner's response to Applicant's argument. Applicant nowhere finds in any recitation of claims as originally presented or amended or in the specification as originally filed, any support for the position that the Examiner has taken with regard to the heat dissipating system being one and the same as the loop heat pipe.

Applicant respectfully directs the Examiner's attention to Figure 1 wherein it is clearly shown that heat source 14 is coupled to a heat pipe which transfers heat from the heat source, in this case by way of an evaporator as shown, to a remotely-positioned heat dissipating system 12, in this case a radiator. This clearly depicts that the loop heat pipe system and the heat dissipating system are not one and the same as shown in Figure 1 and elsewhere in the specification as filed.

The Examiner has directed attention to page 1, line 1-17 wherein the Examiner contends that the Applicant has knowledge of and designs spacecraft where heat pipes radiate heat from the spacecraft. Therefore, the Examiner states, that under 35 U.S.C. § 111(a) Applicants substantively involved with the preparation and/or prosecution of the application have a duty to submit to the Office information which is material to patentability as defined in 37 CFR 1.56. The Examiner goes on to say the provisions of 37 CFR 1.97 and 37 CFR 1.98 provide a mechanism by which patent applicants may comply with the duty of disclosure provided in 37 CFR 1.56.

Further, the Examiner states, that Applicants may also want the Office to consider information for a variety of other reasons, for example, to make sure the Examiner has an opportunity to consider the same information that was considered by these individuals or by another patent office in a counterpart or related patent application filed in another country.

Applicant knows of no specific prior art which is responsive to the Examiner's request. Applicant respectfully submits that at the time that the application was filed, Applicant had no knowledge of pertinent prior art as stated in their Declaration and that they are not now aware of pertinent prior art responsive to Examiner's request.

Applicant respectfully submits that in view of the above remarks and amendments, all of the claims presently under prosecution have been shown to represent non-obvious, patentable subject matter and to patentably distinguishable over the prior art of record. Accordingly, Applicant respectfully requests that this application be reviewed and

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knows
of not
specific
spacecraft

reconsidered in view of the above remarks and amendments and that a Notice of Allowance be issued at an early date.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'AW Karambelas', written in a cursive style.

Anthony W. Karambelas
Registration No. 25,657

Karambelas & Associates
655 Deep Valley Drive, Suite 303
Rolling Hills Estates, CA 90274
Telephone: (310) 265-9565
Facsimile: (310) 265-9545